The Effects of Bacillus cereus as a Biological Control Agent on Xanthomonas vasicola pathovar vasculorum

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The first observation of Xanthomonas vasicola pathovar vasculorum, commonly known as bacterial Leaf Streak being in the United States occurred in Nebraska. As of August 2016, was identified to be affecting the foliage of many types of corn. Since then the disease has been confirmed in eight other states across the corn belt, and there is still no known control method. The project was chosen to see if Bacillus cereus could be used as a biological control agent for inhibiting the growth of Xanthomonas vasicola pathovar vasculorum. Therefore, the question tested in this experiment is “How will Bacillus cereus affect the growth of Xanthomonas vasicola pv. Vasculorum?” Bacillus cereus has been found to naturally produce two antibiotics, zwittermicin and kanosamine. Both antibiotics have been found to be effective antimicrobial agents.To begin Bacillus cereus and sterilized water were used to create a cloudy solution for testing purposes. The Kirby Bauer disk diffusion test and Serial dilution test were conducted to assess the interaction of Bacillus Cereus as a biological control agent against Xanthomonas vasicola pv. vasculorum. First, the Kirby Bauer disk diffusion test was performed treating filter disks already on plates of Xanthomonas vasicola pv. vasculorum with the Bacillus cereus solution and incubate the plates. The second test preformed was serial dilution test with both species of bacteria present in the solution. The initial results show Bacillus cereus did inhibit the growth of Xanthomonas vasicola pv. Vasculorum. The Anova and LSD Post Hoc test were used to analyze the data.

Awards Won:
Third Award of $1,000